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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/784,498

02/23/2004

Dmitry Grebenev

063170.6658

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7590

05/13/2009

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EXAMINER

MEHRMANESH, ELMIRA

ART UNIT

PAPER NUMBER

2113

NOTIFICATION DATE

DELIVERY MODE

05/13/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/784,498	Applicant(s) GREBENEV, DMITRY	
	Examiner Elmira Mehrmanesh	Art Unit 2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is in response to an amendment filed on February 4, 2009 for the application of Grebenev, for a "Kernel-level method of flagging problems in applications" filed February 23, 2004.

Claims 1-21 are pending in the present application.

Claims 1-3, 12, 14, 15, and 17-19 have been amended.

Claims 1, 4-19, and 21 are rejected under 35 USC § 102.

Claims 2, 3, and 20 is rejected under 35 USC § 103.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-19, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al. (U.S. Patent No. 5,684,945).

As per claim 1, Chen discloses a method of identifying problems in applications (Fig. 1) and (col. 22, lines 42-48), comprising:

monitoring (col. 6, lines 61-63 and Fig. 1, element 90, *performance tool*) at a kernel level system resource usage of one or more running (col. 26, lines 31-35 and 49-52) and (col. 94, lines 10-12, wherein Chen discloses "... *process parameter, e.g.,*

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process ID (PID), process name, process priority, userid of the process owner, process memory utilization, CPU utilization, page faults, etc.”) without modifying run-time environments of the one or more user applications (col. 21, lines 65-69 through col. 22, lines 1-2 and 42-52);

determining a system resource usage pattern of a first application (col. 87, lines 3-12), the system resource usage pattern indicating a change (col. 92, lines 25-34) in the system usage of the first application from a first time period to a second time period (col. 15, lines 35-40);

determining whether the system resource usage pattern of the first application satisfies a predetermined criteria associated with one or more problems (col. 92, lines 56-60); and if the system resource usage pattern of the first application satisfies the predetermined criteria (col. 87, lines 53-56), identifying the first application to a user (col. 16, lines 19-23).

As per claim 4, Chen discloses the system resource usage comprises memory usage of the one or more running applications (col. 26, lines 49-52).

As per claim 5, Chen discloses monitoring at a kernel level system resource usage of one or more running applications comprises monitoring at a kernel level system resource usage of one or more running processes belonging to one or more user applications (col. 6, lines 61-63) and (col. 94, lines 10-12) wherein the one or more applications comprise one or more applications initiated at the user level and the one or

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more running processes comprise one or more processes initiated at the kernel level by the one or more user applications (col. 90, lines 63-65).

As per claim 6, Chen discloses the system resource usage of the one or more running processes is monitored over a plurality of consecutive discrete time periods (col. 92, TABLE 66).

As per claim 7, Chen discloses the system resource usage comprises an amount of memory usage for each of the one or more applications; and the predetermined criteria is a limit on a number of memory increases allowed during the plurality of time periods, an increase in amount of the system resource usage from a first period to a second period (col. 92, lines 23-67 through col. 93, lines 6-10).

As per claim 8, Chen discloses the system resource usage comprises an amount of memory usage for each of the one or more applications; (col. 94, lines 10-12, wherein Chen discloses "... *process parameter, e.g., process ID (PID), process name, process priority, userid of the process owner, process memory utilization, CPU utilization, page faults, etc.*"); and the predetermined criteria is a generally continuous increase in the amount of memory usage during the plurality of time periods (col. 92, lines 23-67 through col. 93, lines 6-10).

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As per claim 9, Chen discloses the system resource usage comprises a number of the processes that each of the one or more applications have spawned; and the predetermined criteria is a generally continuous increase in the number of child processes spawned during the plurality of time periods (col. 93, lines 13-29) and (col. 94, lines 8-26).

As per claim 10, Chen discloses identifying the first application to a user comprises saving an identifier of the first application in a reference file, and further comprising saving identifiers (col. 26, lines 38-63) of any other of the one or more applications whose system usage pattern satisfies a predetermined criteria associated with one or more problems in the reference file (col. 94, lines 8-12, wherein Chen discloses *"The user can select a "sort" button to reorder the menu of process data by a specific category or process parameter, e.g., process ID (PID), process name, process priority, userid of the process owner, process memory utilization, CPU utilization, page faults, etc."*); and the predetermined criteria is a generally continuous increase in the amount of memory usage during the plurality of time periods (col. 92, lines 23-67 through col. 93, lines 6-10).

As per claim 11, Chen discloses a computer automatically monitors the kernel level system resource usage of one or more running applications; determines whether a system usage pattern of a first application satisfies a predetermined criteria associated

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with one or more problems (col. 92, lines 56-60); and identifies the first application (col. 90, lines 63-65).

As per claim 12, Chen discloses a method of identifying memory problems in applications (Fig. 1) and (col. 22, lines 42-48), comprising:

monitoring (col. 6, lines 61-63 and Fig. 1, element 90, *performance tool*) at a kernel level system memory usage of one or more running (col. 26, lines 31-35 and 49-52) and (col. 94, lines 8-12, wherein Chen discloses *"The user can select a "sort" button to reorder the menu of process data by a specific category or process parameter, e.g., process ID (PID), process name, process priority, userid of the process owner, process memory utilization, CPU utilization, page faults, etc."*) without modifying run-time environments of the one or more user applications (col. 21, lines 65-69 through col. 22, lines 1-2 and 42-52); and

producing an output comprising at least the memory usage (col. 9, lines 41-51, *data display system*); and

determining a memory usage pattern of a first application (col. 87, lines 3-12), the memory usage pattern indicating a change (col. 92, lines 25-34) in the memory usage of the first application from a first time period to a second time period (col. 15, lines 35-40);

determining whether the memory usage pattern of the first application satisfies a predetermined criteria associated with one or more problems (col. 92, lines 56-60); and

if the memory usage pattern of the first application satisfies the predetermined criteria, identifying the first application to a user (col. 87, lines 53-56).

As per claim 13, Chen discloses the memory usage of the one or more running processes is monitored over a plurality of consecutive discrete time periods, and the predetermined criteria is a limit on a number of memory increases allowed during the plurality of time periods (col. 92, lines 23-67 through col. 93, lines 6-10).

As per claim 14, Chen discloses a method of identifying memory problems in applications (Fig. 1) and (col. 22, lines 42-48), comprising:

monitoring (col. 6, lines 61-63 and Fig. 1, element 90, *performance tool*) at a kernel level system memory usage of one or more running processes (col. 26, lines 31-35 and 49-52) belonging to one or more user applications (col. 94, lines 8-12, wherein Chen discloses *"The user can select a "sort" button to reorder the menu of process data by a specific category or process parameter, e.g., process ID (PID), process name, process priority, userid of the process owner, process memory utilization, CPU utilization, page faults, etc."*) without modifying run-time environments of the one or more user applications (col. 21, lines 65-69 through col. 22, lines 1-2 and 42-52);

producing an output comprising at least the memory usage of one or more applications (col. 9, lines 41-51, *data display system*);

determining a memory usage pattern of a first application (col. 87, lines 3-12), the memory usage pattern indicating a change (col. 92, lines 25-34) in the memory usage of the first application from a first time period to a second time period (col. 15, lines 35-40);

determine whether the memory usage pattern of the first application satisfies a predetermined criteria associated with one or more problems (col. 92, lines 56-60); and

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if the memory usage pattern of the first application satisfies the predetermined criteria, identify the first application (col. 87, lines 53-56) by saving an identifier of the first application in a reference file (col. 88, lines 5-18).

As per claim 15, Chen discloses a method of identifying memory problems in applications (Fig. 1) and (col. 22, lines 42-48), comprising:

monitoring (col. 6, lines 61-63 and Fig. 1, element 90, *performance tool*) at a kernel level system memory usage of one or more running processes (col. 26, lines 31-35 and 49-52) belonging to one or more user applications (col. 94, lines 8-12, wherein Chen discloses *"The user can select a "sort" button to reorder the menu of process data by a specific category or process parameter, e.g., process ID (PID), process name, process priority, userid of the process owner, process memory utilization, CPU utilization, page faults, etc."*) without modifying run-time environments of the one or more user applications (col. 21, lines 65-69 through col. 22, lines 1-2 and 42-52);

determining a memory usage pattern of a first application (col. 87, lines 3-12), the memory usage pattern indicating a change (col. 92, lines 25-34) in the memory usage of the first application from a first time period to a second time period (col. 15, lines 35-40);

determining whether the memory usage pattern of the first application satisfies a predetermined criteria associated with one or more problems (col. 92, lines 56-60); and

if the memory usage pattern of the first application satisfies the predetermined criteria, identifying the first application to a user (col. 87, lines 53-56) the first running application without identifying the one or more running applications whose memory

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usage patterns do not satisfy the predetermined criteria (col. 87, lines 53-56) associated with one or more problems (col. 92, lines 56-60).

As per claim 16, Chen discloses the monitored memory usage comprises at least a stack memory, data memory, and text memory (col. 26, lines 49-63).

As per claim 17, Chen discloses a method of identifying memory problems in applications (Fig. 1) and (col. 22, lines 42-48), comprising:

collecting system resource usage (col. 6, lines 61-63 and Fig. 1, element 90, *performance tool*) at a kernel level system memory usage of one or more running processes (col. 26, lines 31-35 and 49-52) belonging to one or more applications (col. 94, lines 8-12, wherein Chen discloses *"The user can select a "sort" button to reorder the menu of process data by a specific category or process parameter, e.g., process ID (PID), process name, process priority, userid of the process owner, process memory utilization, CPU utilization, page faults, etc."*) without modifying run-time environments of the one or more user applications (col. 21, lines 65-69 through col. 22, lines 1-2 and 42-52);

determining a system resource usage pattern of a first application (col. 87, lines 3-12), the system resource usage pattern indicating a change (col. 92, lines 25-34) in the system usage of the first application from a first time period to a second time period (col. 15, lines 35-40);

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determining whether the system resource usage pattern of the first application satisfies a predetermined criteria associated with one or more problems (col. 92, lines 56-60); and if the system resource usage pattern of the first application satisfies the predetermined criteria (col. 87, lines 53-56), identifying the first application to a user (col. 16, lines 19-23).

As per claim 18, Chen discloses a system for identifying problems in applications (Fig. 1) and (col. 22, lines 42-48), comprising:

a data collection module (col. 69, line 35) operable to retrieve information about a running user applications application at a kernel level (col. 90, lines 63-64); and

a data analysis module (col. 86, lines 66-67 through col. 87, lines 1-15) operable to:

determine abnormal system usage pattern in the information; and

identify a first user application whose system usage pattern satisfies a predetermined criteria (col. 87, lines 53-56) associated with one or more problems (col. 92, lines 56-60), the system usage pattern of the first user application indicating a change (col. 92, lines 25-34) in the system usage of the first application from a first time period to a second time (col. 15, lines 35-40).

As per claim 19, Chen discloses a program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform

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method steps of identifying problems in applications (Fig. 1) and (col. 22, lines 42-48), comprising:

monitoring (col. 6, lines 61-63 and Fig. 1, element 90, *performance tool*) at a kernel level system resource usage of one or more running applications (col. 26, lines 31-35 and 49-52) and (col. 94, lines 8-12, wherein Chen discloses *"The user can select a "sort" button to reorder the menu of process data by a specific category or process parameter, e.g., process ID (PID), process name, process priority, userid of the process owner, process memory utilization, CPU utilization, page faults, etc."*) without modifying run-time environments of the one or more user applications (col. 21, lines 65-69 through col. 22, lines 1-2 and 42-52);

determining a system resource usage pattern of a first application (col. 87, lines 3-12), the system resource usage pattern indicating a change (col. 92, lines 25-34) in the system usage of the first application from a first time period to a second time period (col. 15, lines 35-40);

determining whether the system resource usage pattern of the first application satisfies a predetermined criteria associated with one or more problems (col. 92, lines 56-60); and if the system resource usage pattern of the first application satisfies the predetermined criteria (col. 87, lines 53-56), identifying the first application to a user (col. 16, lines 19-23).

As per claim 21 Chen discloses comparing the monitored system usage for the first application against the predetermined criteria (col. 94, lines 8-12); and

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selecting the first application from the one or more running applications if the system usage pattern of the first application satisfies the predetermined criteria (col. 16, lines 19-23), (col. 87, lines 53-56), and (col. 92, lines 56-60).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2, 3, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (U.S. Patent No. 5,684,945) in view of Lawlor et al. (U.S. Patent No. 5,485,626).

As per claim 2, Chen discloses wherein the predetermined criteria comprises exceeding a predetermined limit (col. 16, lines 18-28, wherein Chen discloses “The r1

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and r2 values allow for scaling of graphs to match the data being recorded/displayed.

There is a threshold alarm value, to trigger an action as described below. The index into tile array provides for differing tile patterns to be used for the graph fill. The graph style saves the style of graph to be displayed on a subsequent playback. Weighting allows to average more than a single sampled value to include the result of multiple samples taken over a period of time, thus providing a way to stabilize/average widely varying data samples.”) on the number of processes [(col. 93, lines 13-29, processes that have become "pathologically insane", or running rampant (i.e. exceeding a predetermined limit)].

However Chen fails to explicitly disclose a predetermined limit on the number of processes that each of the one or more user applications may spawn.

Lawlor teaches:

the system resource usage comprises a number of the one or more processes that each of the one or more user applications have spawned and the predetermined criteria comprises a predetermined limit on the number of processes that each of the one or more user applications may spawn (col. 47, lines 28-42).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of enhancing of parallel processing of applications of Lawlor in combination with the performance monitoring system of Chen to enhance the system performance.

One of ordinary skill in the art at the time of the invention would have been motivated to make the combination because both inventions disclose a method for

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enhancing performance of a system (Chen, Abstract) and (Lawlor, col. 7, lines 5-14).

Both inventions also disclose monitoring (Chen, col. 93, lines 13-29) and (Lawlor, col. 11, lines 61-67).

As per claims 3 and 20, Chen discloses the system resource usage comprises a parent-child relationship between each of the one or more processes and each of the one or more user applications (col. 6, lines 61-63 and Fig. 1, element 90, *performance tool*) comprises monitoring a parent-child relationship between each of the one or more processes and each of the one or more user applications (col. 94, lines 10-12);

Note col. 16, lines 18-28, wherein Chen discloses *"The r1 and r2 values allow for scaling of graphs to match the data being recorded/displayed. There is a threshold alarm value, to trigger an action as described below. The index into tile array provides for differing tile patterns to be used for the graph fill. The graph style saves the style of graph to be displayed on a subsequent playback. Weighting allows to average more than a single sampled value to include the result of multiple samples taken over a period of time, thus providing a way to stabilize/average widely varying data samples."*)

on the number of processes [(col. 93, lines 13-29, processes that have become "pathologically insane", or running rampant (i.e. become non responsive or disconnected from their parent process)];

and determining whether a system usage pattern of a first application satisfies a predetermined criteria (col. 87, lines 53-56) associated with one or more problems (col. 92, lines 56-60);

Lawlor teaches: determining whether the first application has orphaned a process (col. 47, lines 28-42).

Response to Arguments

Applicant's arguments filed February 4, 2009 with respect to claims 1-3, 9, 12, 14, 15, 17, 18, and 19 have been fully considered but they are not persuasive.

As per claims 1-3, 12, 14, 15, and 17-20, applicant's arguments have been fully considered but they are moot in view of new claim analysis. Refer to the corresponding section of the claim analysis for details.

As per claim 9 in response to applicant's arguments that Chen fails to teach the claimed limitation "the system resource usage comprises a number of processes that each of the one or more applications have spawned" the Examiner respectfully disagrees and would like to point out to col. 3, lines 50-58, wherein Chen discloses "In fact, a console of instruments can be constructed to show data from local and remote hosts, including statistics on individual processes. Additionally, custom data from applications that have registered with the Data Server daemon can be added to the viewing instruments that show normal system statistics (also from local or remote hosts)." Note col. 3, lines 50-58, wherein Chen further discloses "Furthermore, the resource monitoring tool is faced with the problem of monitoring entities, such as processes, that are created dynamically and disappear without warning. Thus, obviously, a statically defined context hierarchy would not be adequate, and instead, the context hierarchy must be dynamically created and modifiable at execution time. In the

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performance tool (xmperf), this problem is handled by using an object oriented model. In this model, a generic hierarchy of performance statistics contexts is defined using a hierarchy of context classes.”

Also note col. 16, lines 18-28, wherein Chen discloses “The r1 and r2 values allow for scaling of graphs to match the data being recorded/displayed. There is a threshold alarm value, to trigger an action as described below. The index into tile array provides for differing tile patterns to be used for the graph fill. The graph style saves the style of graph to be displayed on a subsequent playback. Weighting allows to average more than a single sampled value to include the result of multiple samples taken over a period of time, thus providing a way to stabilize/average widely varying data samples.”)

Chen discloses of killing processes that are running rampant (col. 93, lines 13-29), which refers to processes that have become unstable and exceeding a threshold value over time.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elmira Mehrmanesh whose telephone number is (571) 272-5531. The examiner can normally be reached on 8-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W. Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Robert W. Beausoliel, Jr./
Supervisory Patent Examiner, Art Unit 2113